

Appl. No. 09/829,797

REMARKS

This is in response to the Office Action of 30 March 2004. Claims 1-7 are pending in the application, and Claims 1-7 have been rejected.

By this Response and Amendment, Claim 1 has been amended, and new Claims 12-14 have been added.

No new matter has been added.

In view of the amendments above and remarks below, Applicants respectfully request reconsideration and further examination.

About The Invention

The present invention relates generally to structures suitable for use in integrated circuits and which reduce, or eliminate, cracking in the area of bonding pads. More particularly, the present invention relates to structures which underlie bonding pads, and form isolated areas of dielectric material such that those isolated areas filled with dielectric material have a surface to volume ratio where an amount of elastic energy to be released when a crack is formed in the dielectric material is smaller than an amount of surface energy to be gained when the crack is formed.

Rejections under 35 USC 102(a)

Claims 1 and 3-5 are rejected under 35 USC 102(a) as being anticipated by Ker, et al., (US Patent 6,633,087).

Claim 1 has been amended to recite that the isolated areas filled with dielectric material have a surface to volume ratio such that an amount of elastic energy to be released when a crack is formed in the dielectric material is smaller than an amount of surface energy to be gained when the crack is formed. Support for this amendment can be found in the specification at page 4.

There is no disclosure, suggestion, or motivation in Ker, et al., regarding

Appl. No. 09/829,797

the newly recited limitations of independent Claim 1. In view of the foregoing, Applicants respectfully submit that the rejection of independent Claim 1, and the Claims that depend therefrom under 35 USC 102 have been overcome.

Rejections under 35 USC 103(a)

Claims 2 and 7 have been rejected under 35 USC 103(a) as being unpatentable over Ker, et al., (US Patent 6,633,087) in view of Kida, et al., (US Patent 6,313,540). Claim 6 has been rejected under 35 USC 103(a) as being unpatentable over Ker, et al., in view of Saran, et al., (US Publication No. 2002/0187634).

Claims 2 and 6-7 depend, directly or indirectly, from amended independent Claim 1. As discussed above, Claim 1 has been amended to recite that the isolated areas filled with dielectric material have a surface to volume ratio such that an amount of elastic energy to be released when a crack is formed in the dielectric material is smaller than an amount of surface energy to be gained when the crack is formed.

Since the references do not appear to disclose, suggest, or provide motivation for the invention defined by Claims 2, 6, or 7, Applicants respectfully submit that the rejection of these Claims has been overcome.

New Claims 12-14

New Claims 12-14 each depend directly from amended independent Claim 1. Claim 12 recites that the dielectric material used is hydrogen silsesquioxane. Claim 13 recites a sizing relationship between the isolated areas and the bonding pad. Claim 14 recites that the dimensions of the isolated areas of dielectric material are selected in view of the specific dielectric material that is used. Support for these new Claims can be found generally throughout the specification, and can be found more particularly at pages 1 and 4-5.


Appl. No. 09/829,797

Conclusion

All of the rejections in the outstanding Office Action of 30 March 2004 have been responded to, and Applicants respectfully submit that the pending Claims 1-7 and 12-14 are now in condition for allowance.

Applicants respectfully request that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

By 

Raymond J. Werner
Reg. No. 34,752

Dated: 30 June 2004
Portland, Oregon